

freezing cycle system, the computer 21 operates both the electric fans 18 and 19 in cabinet 10 by processing at step 174a. When the second flag FLG2 is set as "1" during deactivation of the freezing cycle system, the computer 21 determines a "Yes" answer at step 180 and determines at step 182 whether the set temperature C_s is less than the predetermined value C_{so} as in the foregoing modification. If the answer at step 182 is "Yes", the computer 21 operates both the electric fans 18 and 19 in cabinet 10 by processing at step 174a. If the answer at step 182 is "No", the computer 21 reads out the refrigerant temperature T detected by sensor 24 at step 184 and selectively operates the electric fans 18 and 19 in accordance with the refrigerant temperature T by processing at step 186, 174a and 188.

With such control of the electric fans 18 and 19 as described above, even when the inside temperature of cabinet 10 is set at a lower temperature than 0°C . for preserving fresh foods such as fish, meat and the like in a lightly frozen condition, fluctuation of the inside temperature of storage compartment 12b is restrained to prevent the preserved foods from melting or freezing.

Illustrated in FIG. 15 is another modification of the main program shown in FIG. 10 for control of the electric fan 18 in the electric control apparatus shown in FIG. 9. During execution of the main program of FIG. 15, the computer 21 executes the timer interruption program of FIG. 2. In this modification, the main program is programmed to control the rotation speed of electric fan 18 in accordance with the set temperature C_s and refrigerant temperature T when the freezing cycle system is deactivated at the power saving mode.

During execution of the main program of FIG. 15, the computer 21 intermittently activates and deactivates the freezing cycle system in accordance with the inside temperature C of cabinet 10 by processing at step 152 to 162 and 168 to 172. When the freezing cycle system is activated or the second flag FLG 2 is set as "0" during deactivation of the freezing cycle system, the computer 21 operates the electric fan 18 in cabinet 10 at a maximum rotation speed by processing at step 174b. When the second flag FLG2 is set as "1" during deactivation of the freezing cycle system, the computer 21 executes processing at step 182 to 186 to decrease the rotation speed of electric fan 18 under control of the speed control circuit 41 when the refrigerant temperature T is less than the predetermined value T_1 in a condition where the set temperature C_s is higher than the predetermined value C_{so} . When the refrigerant temperature T is more than the predetermined value T_1 or the set temperature C_s is lower than the predetermined value C_{so} , the computer 21 operates the electric fan 18 at the maximum rotation speed by processing at step 174b.

With such control of the electric fan 18 as described above, even when the inside temperature of cabinet 10 is set at a lower temperature than 0°C . for preserving fresh foods such fish, meat and the like in a slightly frozen condition, fluctuation of the inside temperature of cabinet 10 is restrained to prevent the preserved foods from melting or freezing. In addition, when the set temperature C_s is higher than the predetermined value C_{so} to preserve fresh foods without causing any spoil thereof, the rate of operation of the electric fan 18 is decreased in accordance with a decrease of the refrigerant temperature T to automatically reduce consumption of the electric power.

What is claimed is:

1. A low temperature storage cabinet having a freezing cycle system composed of a compressor, a condenser, a throttle and an evaporator, a cabinet temperature sensor for

detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature, compressor control means responsive to the electric signal from said temperature sensor for activating the compressor in the freezing cycle system in response to rise of the inside temperature of the cabinet and for deactivating the compressor in response to a fall in the inside temperature of the cabinet, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet.

- 10 wherein the low temperature storage cabinet comprises:
 refrigerant temperature detection means provided in the freezing cycle system to detect a temperature of refrigerant in the freezing cycle system; and
 15 fan control means for controlling operation of said electric fan in the cabinet in accordance with a temperature of refrigerant detected by said detection means during deactivation of said compressor and for decreasing the rate of operation of said electric fan in accordance with a decrease of the refrigerant temperature.

- 20 2. A low temperature storage cabinet as claimed in claim 1, wherein said fan control means comprises means for intermittently operating said electric fan in the cabinet during deactivation of said compressor and for changing the operation time and the stopping time of said electric fan to control the rate of operation of said electric fan in accordance with the refrigerant temperature.

3. A low temperature storage cabinet as claimed in claim 1, wherein said fan control means comprises means for 30 selectively effecting continual operation of said electric fan or intermittent operation of said electric fan during deactivation of said compressor to control the rate of operation of said electric fan in accordance with the refrigerant temperature.

- 35 4. A low temperature storage cabinet as claimed in claim 1, wherein a plurality of electric fans are provided in the cabinet for circulating cooled air in the interior of the cabinet, and wherein said fan control means comprises means for selectively operating said electric fans during 40 deactivation of said compressor to control the rate of operation of said electric fans in accordance with the refrigerant temperature.

5. A low temperature storage cabinet as claimed in claim 1, wherein said fan control means comprises means for 45 controlling the rotation speed of said electric fan during deactivation of said compressor to control the rate of operation of said electric fan in accordance with the refrigerant temperature.

6. A low temperature storage cabinet having a freezing 50 cycle system composed of a compressor, a condenser, a throttle and an evaporator, a cabinet temperature sensor for detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature, compressor control means responsive to the electric signal from said temperature sensor for activating the compressor in the freezing cycle system in response to rise of the inside temperature of the cabinet and for deactivating the compressor in response to a fall in the inside temperature of the cabinet, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet.

- 65 wherein the low temperature storage cabinet comprises:
 refrigerant pressure detection means provided in the freezing cycle system to detect pressure of refrigerant in the freezing cycle system; and
 fan control means for controlling operation of said electric fan in the cabinet in accordance with refrig-

erant pressure detected by said pressure detection means during deactivation of said compressor and for decreasing the rate of operation of said electric fan in accordance with a decrease of the refrigerant pressure.

7. A low temperature storage cabinet having a freezing cycle system composed of a compressor, a condenser, a throttle and an evaporator, a cabinet temperature sensor for detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature, compressor control means responsive to the electric signal from said temperature sensor for activating the compressor in the freezing cycle system in response to rise of the inside temperature of the cabinet and for deactivating the compressor in response to a fall in the inside temperature of the cabinet, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet.

wherein the low temperature storage cabinet comprises: ambient temperature detection means provided on the cabinet to detect a temperature of outside air; and fan control means for controlling operation of said electric fan in the cabinet in accordance with a temperature of outside air detected by said ambient temperature detection means during deactivation of said compressor and for decreasing the rate of operation of said electric fan in accordance with a decrease of the temperature of outside air.

8. A low temperature storage cabinet having a freezing cycle system composed of a compressor, a condenser, a throttle and an evaporator, a cabinet temperature sensor for detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature, temperature setting means for setting an inside temperature of the cabinet, compressor control means responsive to the electric signal from said cabinet temperature sensor for activating said compressor when the inside temperature of the cabinet rises in a nominal value more than an inside temperature set by said temperature setting means and for deactivating said compressor when the inside temperature of the cabinet falls in the nominal value less than the inside temperature set by said temperature setting means, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet.

wherein the low temperature storage cabinet comprises: refrigerant temperature detection means provided in the freezing cycle system for detecting a temperature of refrigerant in the freezing cycle system; first fan control means for operating said electric fan in the cabinet at a predetermined rate of operation during deactivation of said compressor when the inside temperature set by said temperature setting means is less than a predetermined temperature; and second fan control means for decrease the rate of operation of said electric fan in accordance with a decrease of the refrigerant temperature detected by said refrigerant temperature detection means during deactivation of said compressor when the inside temperature set by said temperature setting means is more than the predetermined temperature.

9. A low temperature storage cabinet having a freezing cycle system composed of a compressor, a condenser, a throttle and an evaporator, cabinet temperature sensor for

detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature. temperature setting means for setting an inside temperature of the cabinet. compressor control means responsive to the electric signal from said cabinet temperature sensor for activating said compressor when the inside temperature of the cabinet rises in a nominal value more than an inside temperature set by said temperature setting means and for deactivating said compressor when the inside temperature of the cabinet falls in the nominal value less than the inside temperature set by said temperature setting means, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet.

wherein the low temperature storage cabinet comprises: refrigerant pressure detection means provided in the freezing cycle system for detecting pressure of refrigerant in the freezing cycle system; first fan control means for operating said electric fan in the cabinet at a predetermined rate of operation during deactivation when the inside temperature set by said temperature setting means is less than a predetermined temperature; and second fan control means for decreasing the rate of operation of said electric fan in accordance with a decrease of the refrigerant pressure detected by said refrigerant pressure detection means during deactivation of said compressor when the inside temperature set by said temperature setting means is more than the predetermined temperature.

10. A low temperature storage cabinet having a freezing cycle system composed of a compressor, a condenser, a throttle and an evaporator, cabinet temperature sensor for detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature. temperature setting means for setting an inside temperature of the cabinet. compressor control means responsive to the electric signal from said cabinet temperature sensor for activating said compressor when the inside temperature of the cabinet rises in a nominal value more than an inside temperature set by said temperature setting means and for deactivating said compressor when the inside temperature of the cabinet falls in the nominal value less than the inside temperature set by said temperature setting means, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet.

wherein the low temperature storage cabinet comprises: ambient temperature detection means for detecting a temperature of outside air; first fan control means for operating said electric fan in the cabinet at a predetermined rate of operation during deactivation of said compressor when the inside temperature set by said temperature setting means is less than a predetermined temperature; and second fan control means for decreasing the rate of operation of said electric fan in accordance with a decrease of the temperature of outside air detected by said ambient temperature detection means during deactivation of said compressor when the inside temperature set by said temperature setting means is more than the predetermined temperature.

Please add Claim 11 as follows:

Claim 11. A low temperature storage cabinet having a freezing cycle system comprising:

a compressor, a condenser, a throttle and an evaporator, a cabinet temperature sensor for detecting an inside temperature of the cabinet and for producing an electric signal indicative of the detected inside temperature, temperature setting means for setting an inside temperature of the cabinet to a predetermined standard value, compressor control means responsive to the electric signal from said cabinet temperature sensor for activating said compressor in the freezing cycle system when the inside temperature of the cabinet rises more than the predetermined standard value and for deactivating said compressor when the inside temperature of the cabinet falls less than the predetermined standard value, and an electric fan provided in the cabinet for circulating cooled air in the interior of the cabinet,

wherein the low temperature storage cabinet comprises:

fan control means for operating said electric fan in the cabinet at a predetermined rate of operation during deactivation of said compressor in a condition where the inside temperature of the cabinet is set less than the predetermined standard value by adjustment of said temperature setting means and for operating said electric fan at a rate of operation less than the predetermined rate of operation during deactivation of said compressor in a condition where the inside temperature of the cabinet is set more than or equal to the predetermined standard value by adjustment of said temperature setting means.